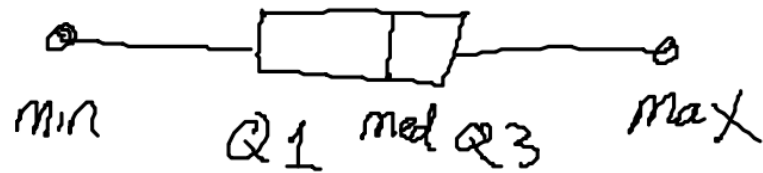


2.1 Measures of Central Tendency and Box Plots p. 77



Σ Sigma
= Sum

Mean = average

$$\frac{\Sigma bw}{\# bw} = 10.2 lb$$

mode = shows up the most 10 lb

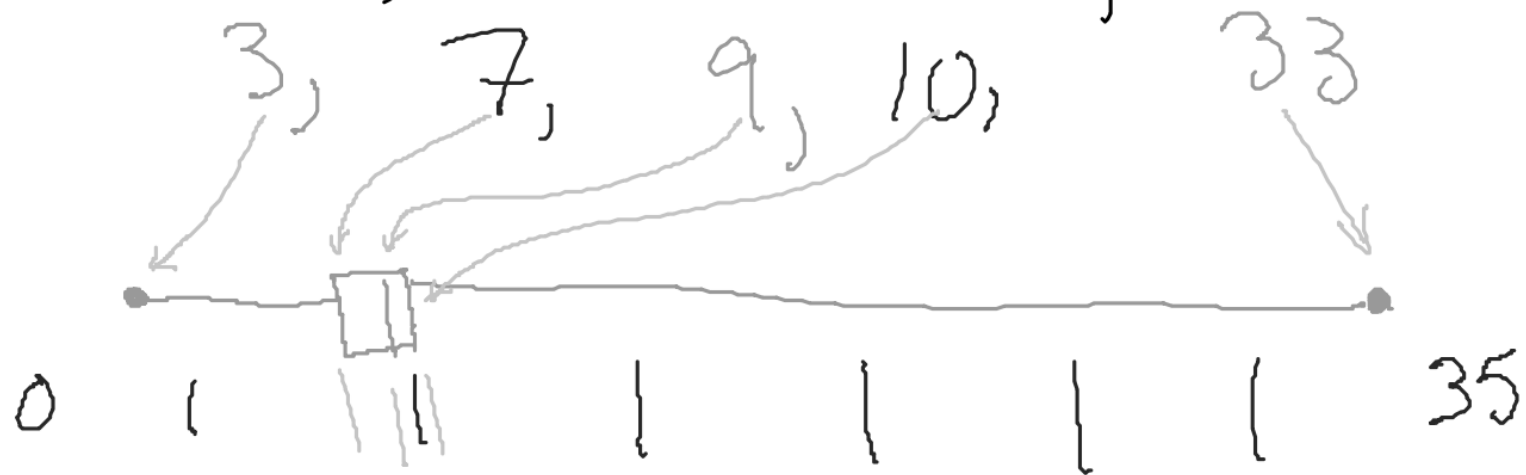
Median = arrange sm \rightarrow lg & # in the middle
(average two numbers in middle) 9 lb

3 4 4 4 6 7 7 7 7 8 8 9 9 9 9 10 10 10 10 10 10
 13 15 15 16 17 20 33

$$\frac{\sum_{i=1}^n x_i}{n} = \bar{x}$$

5 number summary

minimum, Q1, median, Q3, maximum



SKEW



Symmetric



skewed right



skewed left

pp. 81-82
1-5, 9

$$\frac{\sum}{3} = 12$$

9) 56, 62, 49, 65, 58, 52, 68, 72, 25, 51, 64

a) IQR ($Q_3 - Q_1$) Connie $85 - 82 = 3$
Oscar $94 - 76 = 18$

b) range = 47 IQR = $65 - 51 = 14$

25, 49, 51, 52, 56, 58, 62, 64, 65, 68, 72

2) Data Set mean = 12, median = 14, $n = 3$

a) $\frac{\Sigma}{n} = \bar{x}$ $\Sigma = \bar{x}n = 12 \cdot 3 = 36$

b) 14 (middle)

c) $\begin{matrix} 6 \\ 5 \\ 2 \end{matrix}, 14, \begin{matrix} 16 \\ 17 \\ 20 \end{matrix}$

yes!

	1 Justina	2 Paola	3 Maria	4 Carla
1	44 cm	124 cm	68 cm	58 cm
2	124 cm	47 cm	32 cm	40 cm
3	43 cm	18 cm	67 cm	94 cm
4	100 cm	85 cm	95 cm	131 cm
5	40 cm	100 cm	60 cm	100 cm
6	42 cm	85 cm	53 cm	85 cm
7	92 cm	73 cm	32 cm	100 cm

9/8	
	Mean
1	69.3
2	76.0
3	58.14
4	86.9

Σ

9/8

9/9

	Mean	Sum of deviations	Standard deviation
1	69.	- .1	35.08
2	76.0	0	34.78
3	58.1	0.02	22.10
4	86.9	-0.3	29.94

$$58 + 22 = 80$$

$$58 - 22 = 36$$

deviation

$$X_i - \bar{X} =$$

$$\sqrt{\frac{\sum_{i=1}^7 (x_i - \bar{x})^2}{7-1}}$$

2nd $\sqrt{\quad}$ (2nd ANS)2nd $\sqrt{\quad}$

Outliers - numbers that don't fit the pattern

1) IQR 1.5 IQR

$$1.5(Q_3 - Q_1)$$

$$\text{Median} + 1.5 \text{IQR}$$

high end

$$\text{Median} - 1.5 \text{IQR}$$

low end

2) standard deviation

2s

$$\bar{x} + 2s$$

high end

$$\bar{x} - 2s$$

low end

outliers (

)

) outliers

pp. 90-91 #1-4, 6, 7

9/9

{ , , , ... }

$\xrightarrow{\text{STO}}$ L1 enter

9/12

STAT CALC 1-Var Stats 2nd L1 ENTER

$$s = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n-1}}$$

$$6) \bar{x} = 12.0 \text{ cm} \quad s = 0.012 \text{ cm}$$

$$\bar{x} + s = 12.012 \text{ cm}$$

$$\bar{x} - s = 11.988 \text{ cm}$$

$$7) \bar{x} + 2s = 15.63 + 2(2.18) = 19.99$$

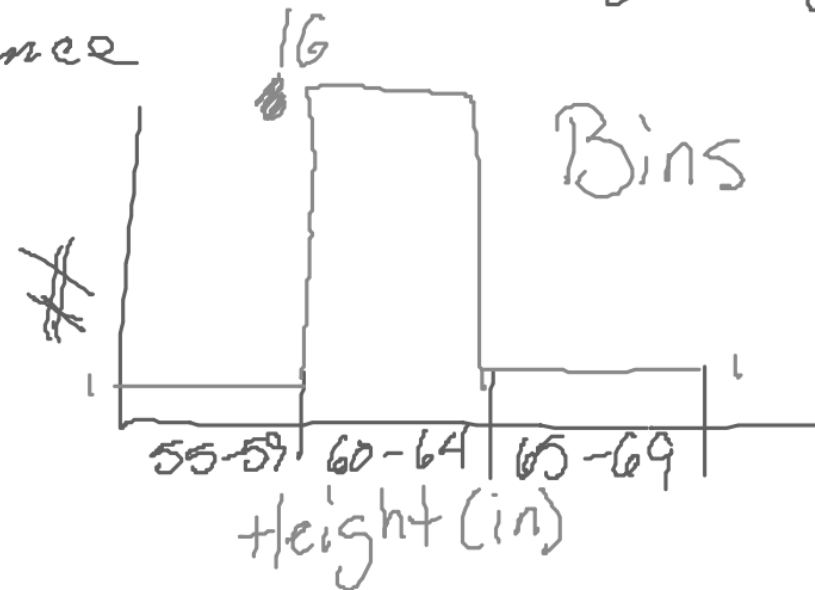
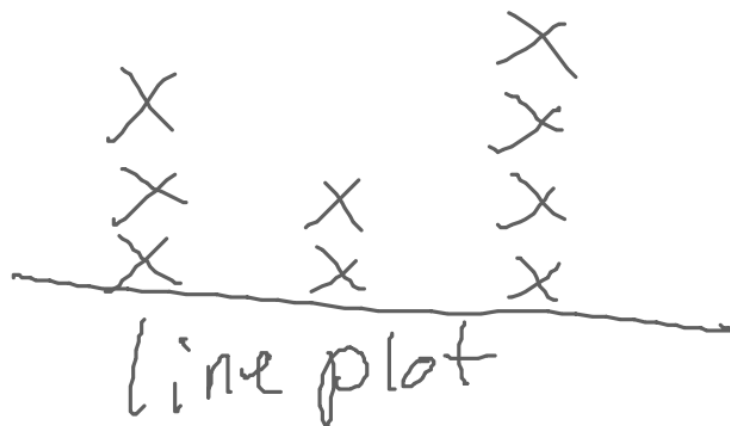
$$\bar{x} - 2s = 15.63 - 2(2.18) = 11.27$$

bigger than 19.99 (1)

smaller than 11.27 (0)

med + 1.5 IQR	19.2	(5)
med - 1.5 IQR	11.1	(0)
		<hr/> 5

histogram - graph, columns about each other
column height tells us about the frequency of
the measured occurrence

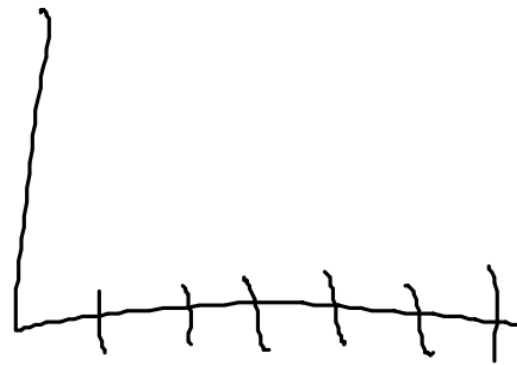
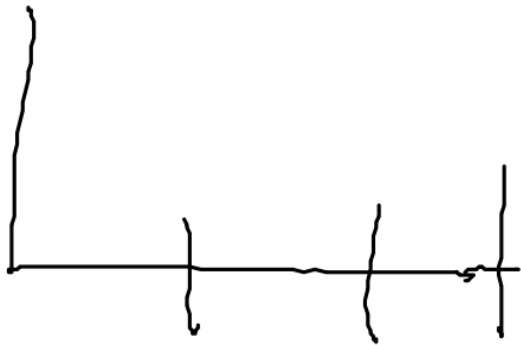


Ex A b) Graph A 5% Graph B 2.5%

a) $\text{range} = \text{max} - \text{min} = 83.3 - 29.3 = 54.0$

d) add up all of the bin heights

e) fewer fit in the bin width



Percentile rank

9/14

Ft. Collins

25 items

10 below Ft. C

$$\frac{10}{25} = 0.40 \quad 40^{\text{th}} \text{ percentile}$$

Denver $\frac{2}{25} = 0.08 \quad 8^{\text{th}} \text{ percentile}$

Yuma $\frac{22}{25} = 0.88 \quad 88^{\text{th}} \text{ percentile}$

Las Vegas $\frac{24}{25} = 0.96$

Ex. B $\bar{X} = 34.05$ $s = 14.68$

$$\bar{X} + 2s = 34.05 + 29.36 = 64.41$$

$$\frac{0 \rightarrow 60}{\text{total}} = \frac{37}{410} = .0925 \quad 93^{\text{RD}}$$

Cal Leandra

Protein Maria

Sodium Ameriliah

Carbs Pada

Mean
Median

Mode

5 number summary

IQR

S

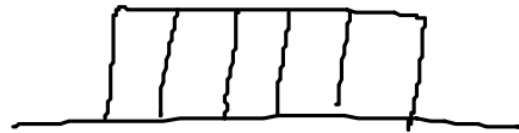
Range

min = 270	28	480	12
Q1 = 310	34	600	16
med = 410	38	795	18.5
Q3 = 480 \cup	45	1060	25
max = 720	66	1280	34
mode = 270, 420, 310	35, 45	1180	25
S 117.18	9.98	266.41	5.82
IQR 170	11	460	9
Range 450	38	800	22
Mean = 408.18	40.5	831.91	20.5
Cal	Carbs	Sodium	Protein

pp. 100-103 # 1, 2, 3, 6, 7, 8

Hw. pp. 108-109 # 1-5

6d) rectangular



1c)

0 0 | 2 | 1 0 1 4 1
0 1 2 3 4 5 6 7 8

2.0 → 2.99

3.0 → 3.99

5.0 → 5.99

6.0 → 6.99

7.0 → 7.99

2.5, 2.6

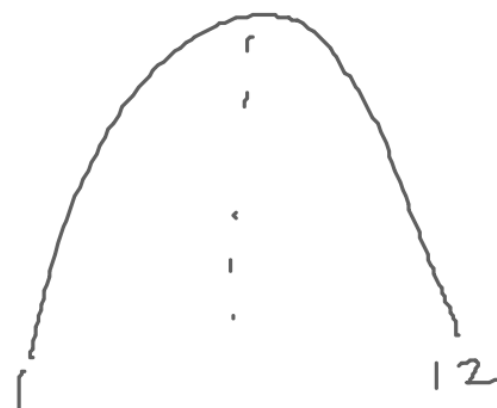
3.6

5.7

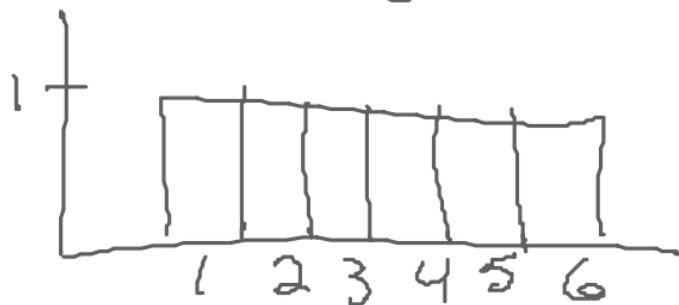
6.1, 6.2, 6.3, 6.4

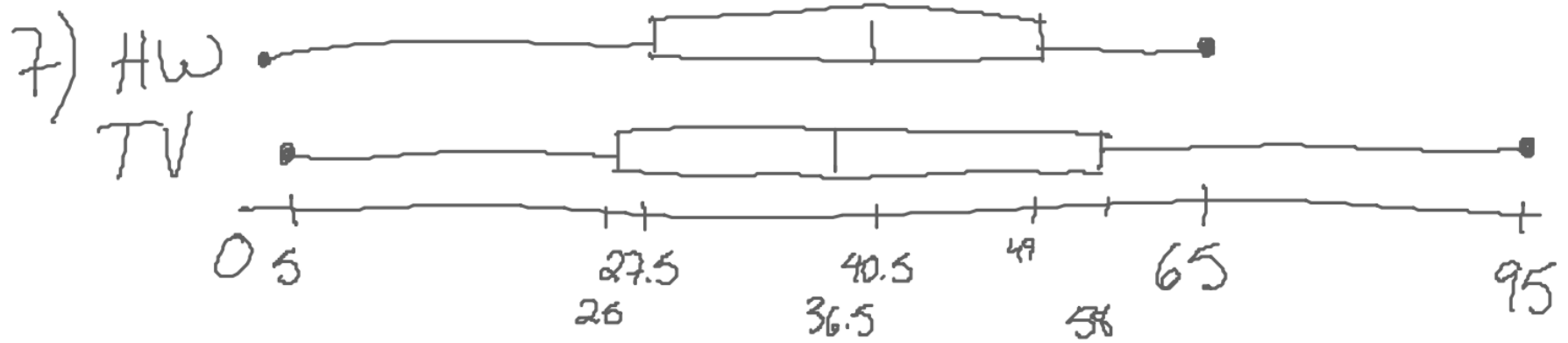
7.5

9/20



36) $\frac{5}{20} = .25$ 25th percentile





HW  S-L

TV  S-R

$$IQR = Q3 - Q1$$

8) 1500

$$76\% \quad 88^{\text{th}} \text{ percentile} = \frac{x}{1500}$$

$$(.88)1500 = x = 1320 \text{ below him}$$

$$1500 - 1320 - 1 = 179 \text{ above}$$

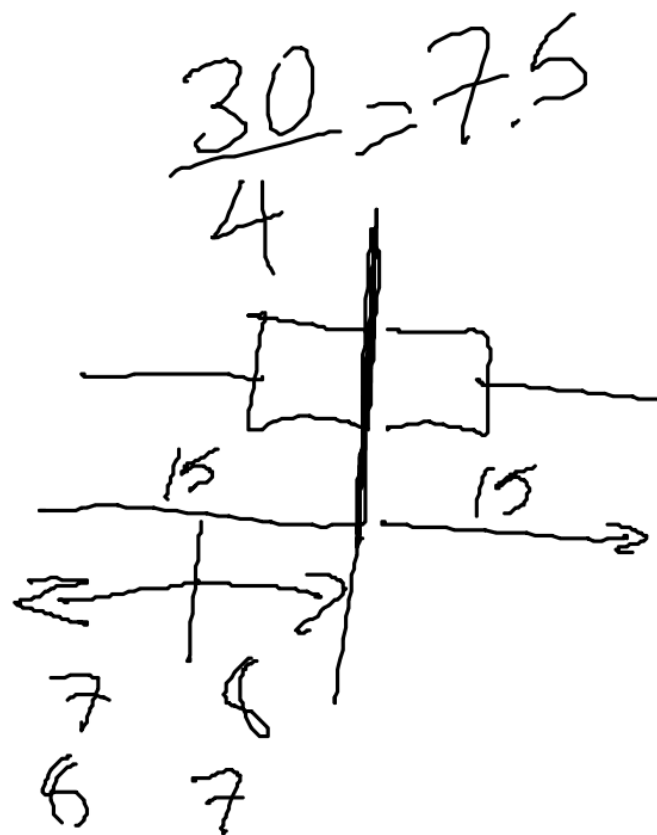
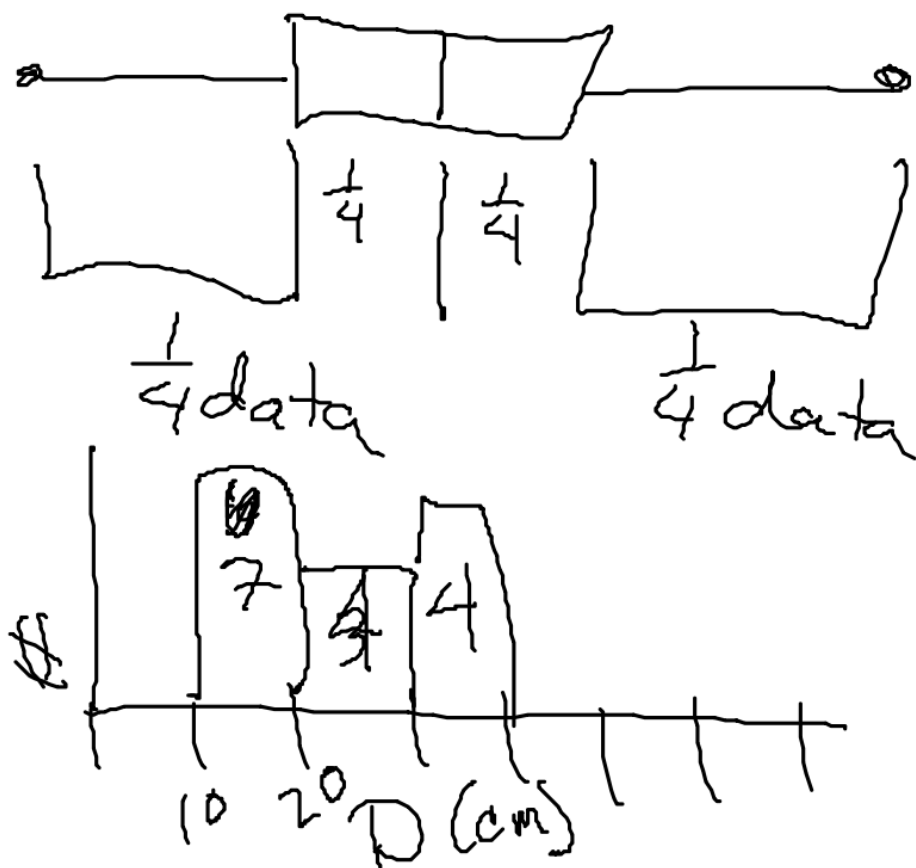
about 1320 +
180 because
we don't know
if any one else
scored 76%.

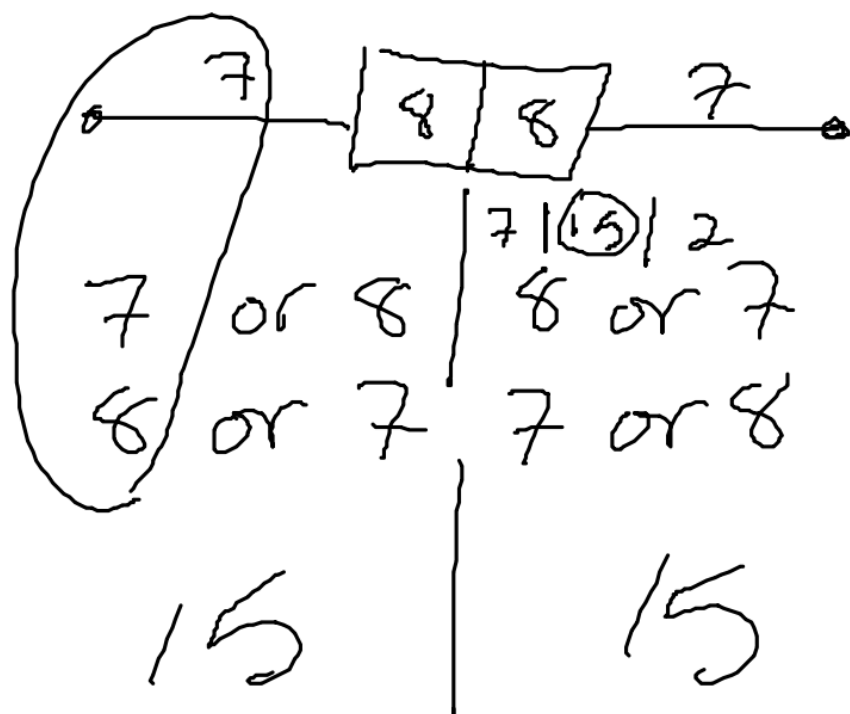
% score = correct on test
percentile rank = where you are
compared to others who took
the test

7% \neq 7th percentile

Standard dev.

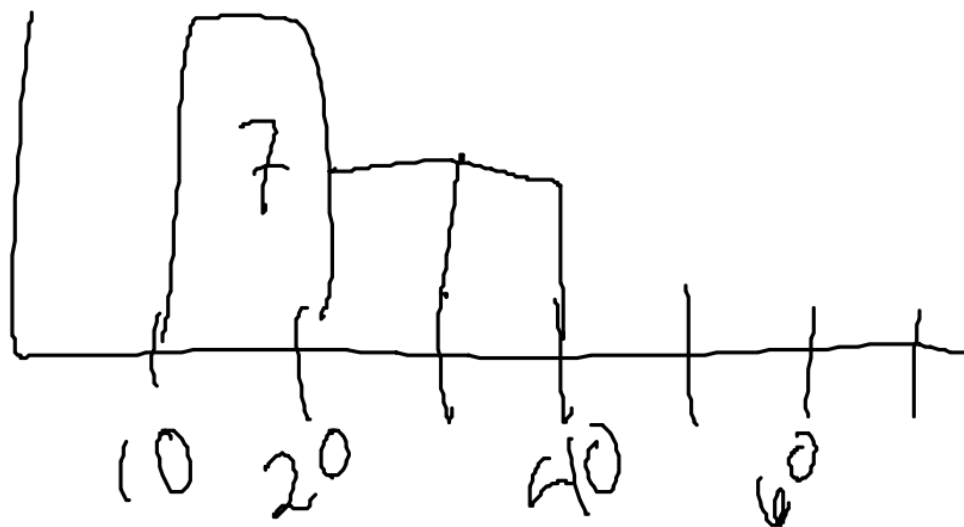
If the groups of data have the same number of items, the one with the largest range has the greatest S.





$$\frac{30}{4} = 7.5 \quad 9/22$$

7 or 8



7 values

4) a > 5
b > IQR

2 6 10 12 16 19 20

range 18 IQR 13

2 2 2 // 15 17 18
16 IQR 15

$$\text{mean} = \bar{X}$$
$$s = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n-1}}$$